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Accounting Ratios Formulas

Complete ratio analysis formulas for CA Inter. Liquidity, profitability, solvency, and turnover ratios.

Liquidity Ratios

Ratio	Formula	Ideal	Meaning
Current Ratio	Current Assets / Current Liabilities	2:1	Short-term liquidity
Quick Ratio (Acid Test)	(CA – Inventory – Prepaid) / CL	1:1	Immediate liquidity
Cash Ratio	Cash & Equivalents / Current Liabilities	0.5:1	Absolute liquidity
Working Capital	Current Assets – Current Liabilities	Positive	Operating cushion

Worked Example: Liquidity Ratios

Balance Sheet Extract (₹ in Lakhs)

Cash & Bank: **50**

Receivables: **150**

Inventory: **200**

Prepaid Expenses: **20**

Current Assets: **420**

Current Liabilities: **210**

$$\text{Current Ratio} = \text{CA} / \text{CL} = 420 / 210 = 2:1 \checkmark$$

$$\text{Quick Ratio} = (420 - 200 - 20) / 210 = 200 / 210 = 0.95:1$$

$$\text{Cash Ratio} = 50 / 210 = 0.24:1$$

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Profitability Ratios

Ratio	Formula	Meaning
Gross Profit Ratio	$(\text{Gross Profit} / \text{Net Sales}) \times 100$	Trading efficiency
Net Profit Ratio	$(\text{Net Profit} / \text{Net Sales}) \times 100$	Overall profitability
Operating Profit Ratio	$(\text{Operating Profit} / \text{Net Sales}) \times 100$	Operational efficiency
Return on Assets (ROA)	$(\text{Net Profit} / \text{Total Assets}) \times 100$	Asset utilization
Return on Equity (ROE)	$(\text{Net Profit} / \text{Shareholders' Equity}) \times 100$	Shareholder returns
Return on Capital Employed (ROCE)	$(\text{EBIT} / \text{Capital Employed}) \times 100$	Overall returns
Earnings Per Share (EPS)	$\text{Net Profit} / \text{Number of Shares}$	Per share earnings

Capital Employed = Total Assets - Current Liabilities = Equity + Long-term Debt

Worked Example: Profitability Ratios

Income Statement (₹ Lakhs)

Net Sales: **1,000**

COGS: **600**

Gross Profit: **400**

Operating Expenses: **200**

EBIT: **200**

Interest: **40**

Net Profit (after tax): **120**

Balance Sheet (₹ Lakhs)

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Capital Employed: 800

Shareholders' Equity: **400**

No. of Shares: **10 Lakh**

$$\text{GP Ratio} = (400 / 1,000) \times 100 = 40\%$$

$$\text{NP Ratio} = (120 / 1,000) \times 100 = 12\%$$

$$\text{ROA} = (120 / 800) \times 100 = 15\%$$

$$\text{ROE} = (120 / 400) \times 100 = 30\%$$

$$\text{ROCE} = (200 / 600) \times 100 = 33.33\%$$

$$\text{EPS} = 120 \text{ Lakhs} / 10 \text{ Lakh shares} = ₹12/\text{share}$$

Solvency Ratios

Ratio	Formula	Ideal	Meaning
Debt-Equity Ratio	Total Debt / Shareholders' Equity	2:1	Financial leverage
Debt Ratio	Total Debt / Total Assets	<0.5	Asset financed by debt
Proprietary Ratio	Shareholders' Equity / Total Assets	>0.5	Owner's stake
Interest Coverage Ratio	EBIT / Interest Expense	>3	Interest paying ability
Debt Service Coverage	(PAT + Depreciation + Interest) / (Interest + Principal)	>1.5	Debt repayment ability

Worked Example: Solvency Ratios

Financial Data (₹ Lakhs)

Long-term Debt: **300**

Shareholders' Equity: **500**

EBIT: **150**

Interest Expense: **30**

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$$\text{Debt-Equity} = 300 / 500 = 0.6:1 \checkmark$$

$$\text{Debt Ratio} = 300 / 1,000 = 0.3 \checkmark$$

$$\text{Proprietary} = 500 / 1,000 = 0.5 \checkmark$$

$$\text{Interest Coverage} = 150 / 30 = 5 \text{ times } \checkmark$$

$$\text{DSCR} = (90 + 40 + 30) / (30 + 50) = 160 / 80 = 2 \text{ times } \checkmark$$

Analysis: All ratios within ideal range - company has strong solvency position.

Turnover/Activity Ratios

Ratio	Formula	Unit	Meaning
Inventory Turnover	COGS / Average Inventory	times	Stock rotation speed
Inventory Days	365 / Inventory Turnover	days	Days to sell inventory
Receivables Turnover	Credit Sales / Average Receivables	times	Collection efficiency
Receivables Days	365 / Receivables Turnover	days	Collection period
Payables Turnover	Credit Purchases / Average Payables	times	Payment speed
Payables Days	365 / Payables Turnover	days	Payment period
Asset Turnover	Net Sales / Average Total Assets	times	Asset efficiency
Fixed Asset Turnover	Net Sales / Average Fixed Assets	times	Fixed asset use
Working Capital Turnover	Net Sales / Working Capital	times	WC efficiency

Operating Cycle = Inventory Days + Receivable Days - Payable Days

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Financial Data (₹ Lakhs)

Net Credit Sales: **1,200**
COGS: **800**
Credit Purchases: **600**

Avg Inventory: **100**
Avg Receivables: **150**
Avg Payables: **75**

$$\text{Inventory Turnover} = 800 / 100 = 8 \text{ times}$$

$$\text{Inventory Days} = 365 / 8 = 46 \text{ days}$$

$$\text{Receivables Turnover} = 1,200 / 150 = 8 \text{ times}$$

$$\text{Receivables Days} = 365 / 8 = 46 \text{ days}$$

$$\text{Payables Turnover} = 600 / 75 = 8 \text{ times}$$

$$\text{Payables Days} = 365 / 8 = 46 \text{ days}$$

Operating Cycle Calculation:

$$\begin{aligned} &= \text{Inventory Days} + \text{Receivables Days} - \text{Payables Days} \\ &= 46 + 46 - 46 = 46 \text{ days} \end{aligned}$$

Market/Valuation Ratios

Ratio	Formula	Meaning
Price-Earnings (P/E)	Market Price per Share / EPS	Market valuation
Dividend Yield	$(\text{DPS} / \text{Market Price}) \times 100$	Return from dividends
Dividend Payout	$(\text{DPS} / \text{EPS}) \times 100$	Profit distributed
Book Value per Share	Shareholders' Equity / No. of Shares	Net worth per share
Price to Book (P/B)	Market Price / Book Value	Premium over book

Worked Example: Market Ratios

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Market Price: ₹180/share
 EPS: ₹12/share
 DPS: ₹3/share

Shareholders' Equity: ₹400 Lakhs
 No. of Shares: 10 Lakh
 Book Value: ₹40/share

$$\text{P/E Ratio} = 180 / 12 = 15 \text{ times}$$

$$\text{Dividend Yield} = (3 / 180) \times 100 = 1.67\%$$

$$\text{Dividend Payout} = (3 / 12) \times 100 = 25\%$$

$$\text{Book Value} = 400 \text{ Lakhs} / 10 \text{ Lakh} = ₹40/\text{share}$$

$$\text{P/B Ratio} = 180 / 40 = 4.5 \text{ times}$$

Analysis: P/E of 15 indicates moderate valuation. P/B of 4.5 suggests market values the company at 4.5× its book value.

DuPont Analysis

$$\text{ROE} = \text{Net Profit Margin} \times \text{Asset Turnover} \times \text{Equity Multiplier}$$

Net Profit Margin

Net Profit / Sales

Asset Turnover

Sales / Total Assets

Equity Multiplier

Total Assets / Equity

Worked Example: DuPont Analysis

Net Profit: ₹120 L

Sales: ₹1,000 L

Total Assets: ₹800 L

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$$\text{Net Profit Margin} = 120 / 1,000 = 12\%$$

$$\text{Asset Turnover} = 1,000 / 800 = 1.25 \text{ times}$$

$$\text{Equity Multiplier} = 800 / 400 = 2 \text{ times}$$

$$\text{ROE} = 12\% \times 1.25 \times 2 = 30\%$$

Verify: ROE = Net Profit / Equity = 120 / 400 = 30% ✓

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